Remarks/Arguments:

Claims 2 and 7-26 are pending. Claims 13 and 21 have been amended. No new material is introduced therein.

Claim 13 was rejected under 35 U.S.C. §102(b) as being anticipated by Ahn et al. (U.S. Pat. No. 5,570,385). The ground for rejection of claim 13 is respectfully overcome by the amendment to claim 13. Ahn et al. neither disclose nor suggest:

> . . . a substrate formed from a semiconductor of a first conductivity type and having an optical component region and a substantially planar fiber mount region adjacent to the optical component region. . .
>
> . . .the substantially planar fiber mount region is configured to permit alignment of an optical fiber in first and second directions using at least a top view and a side view. . .

The added phrase is supported by, for example, by paragraphs 42, 59, 60 and Figures 8 and 9.

Ahn et al. disclose a semiconductor laser formed of a compound semiconductor substrate having a laser chip region and guide regions. The guide regions define a cavity for coupling the chip region with external elements (Col. 3, lines 46-50). Ahn et al. further discloses that "it is easy to couple the laser with external signal transfer lines" because of "guide regions." (col. 7, lines 25-28) Ahn et al. do not disclose or suggest Applicants feature of ". . . the substantially planar fiber mount region is configured to permit alignment of an optical fiber in first and second directions using at least a top view and a side view. . ." (emphasis added). Ahn et al. is silent on aligning an optical fiber in the guide region.

The present invention provides other advantages over the Ahn et al. reference by having a "substantially planar fiber mount region. . . configured to permit alignment of an optical fiber in first and second directions using at least a top view and a side view." In particular, the planar fiber mount region allows the optical fiber to be aligned with the optical device while utilizing top and side camera views. The device described by Ahn et al. includes a U-shaped

guide region for coupling an external signal transfer line. The U-shaped guide region does not permit side views for aligning a transfer line. If, for example, the laser emits light away from a horizontal axis, the device described by Ahn et al. may be more difficult to align and thus provide poor coupling while the device of the present invention could still produce a good coupling as the optical fiber may be visually positioned in at least two dimensions in order to achieve the best coupling. Because Ahn et al. does not disclose nor suggest all of the features of amended claim 13, amended claim 13 is not subject to rejection under 35 U.S.C. §102(b) as being anticipated by Ahn et al.

Claims 2, 7-12 and 24-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. (U.S. Pat. App. Pub. No 2003/0108304)in view of Koh et al. (U.S. Pat. No. 6628,854). This ground for rejection is respectfully traversed. In particular, neither Zairi et al. nor Koh et al. disclose nor suggest:

> ". . . a substrate having an optical component mount aperture formed therein. . . the optical component mount aperture is configured to receive an optical component therein. . ." as required by claim 7.

Zairi et al. disclose, in Fig. 7A, an optical connection module that includes a substrate 92 and a thermally insulating material 94 integrated into the substrate. A bonding pad 96 is attached to a top surface of the insulating material 94 and is used to attach optical fiber 102 (paragraph 36). Zairi et al. disclose fabricating laser 95 directly on the substrate or attaching the laser using a bonding region (paragraph 36). The optical component mount region of Zairi et al., for laser 95, is thus directly on the surface of the substrate. Zairi et al. thus do not disclose nor suggest "a substrate having an optical component mount aperture formed therein... the optical component mount aperture is configured to receive an optical component therein..." (emphasis added) as required by claim 7. Zairi et al. do not disclose nor suggest that the substrate has a component mount aperture that is configured to receive an optical component mounted in the fiber mount region.

Koh et al. disclose an optical transceiver. As shown in Figs. 2 and 4, a silicon bench 6 includes U-shaped recesses to receive a variety of optical devices (Col. 4, lines 6-10). Koh et al. do not disclose nor suggest "a substrate having an optical component mount aperture formed therein and a. . .the optical component mount aperture is configured to receive an

optical component therein. . ." (emphasis added). This feature is neither disclosed or suggested by Koh et al. Koh et al. only disclose that the silicon bench includes recesses to receive optical devices. The present invention provides an advantage over Koh et al. because the component mount aperture is manufactured as a separately. If a defect is found in the component mount aperture, only the component mount aperture needs to be replaced rather than the entire substrate. In the silicon bench of Koh et al, a defect in one of the U-shaped recesses may require the manufacture of another silicon bench.

Accordingly, neither Zairi et al. nor Koh et al. disclose nor suggest Applicant's features as required by claim 7 and is not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. In view of Koh et al. Because claims 2 and 8-12 depend from claim 7, they are also not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. in view of Koh et al.

The ground for rejection of claim 24 is respectfully traversed for similar reasons to claim 7. As set forth above, neither Zairi et al. nor Koh et al. disclose nor suggest "... an unpackaged optical component mounted on the base in an aperture...." as required by claim 24. Accordingly, claim 24 is not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. in view of Koh et al. Because claims 25 and 26 depend upon claim 24, they are also not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. in view of Koh et al.

Claims 18-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. in view of Tombling et al. (U.S. Pat. No. 6,728,450). The ground for this rejection is respectfully traversed. In particular, neither Zairi et al. nor Tombling et al. disclose nor suggest ". . .forming an optical component mountable aperture on a surface of the substrate. . . placing an optical component within the optical component mountable aperture. . . "as required by claim 18.

Zairi et al is discussed above. Tombling et al. disclose a support surface 36 containing "wells" 52. Contact pads 53 and electrodes 51 are placed in the wells and optical component 31 is mounted on top of the substrate. (See Fig. 10 and col. 6, lines 1-13). Tombling et al. does not disclose nor suggest "a substrate having an optical component mount aperture formed therein and a . . . fiber mount region formed on the substrate, . . .the optical component mount

aperture is configured to receive an optical component therein. . ." (emphasis added). Tombling et al. does not disclose or suggest a substrate having a fiber mount region and a component mount aperture that is configured to receive an optical component mounted in the aperture as required by claim 7.

Neither Zairi et al. nor Tombling et al. disclose nor suggest forming a substrate having a fiber mount region and placing an optical component within an optical component mountable aperture. Accordingly, claim 18 is not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. in view of Tombling et al. Because claims 19-20 depend upon claim 18, they are also not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Zairi et al. in view of Tombling et al.

Claims 14-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ahn et al. and further in view of Zairi et al. This ground for rejection is respectfully traversed. Ahn et al. and Zairi et al. are discussed above. As set forth above, amended claim 13, from which claims 14-17 depend, is not subject to rejection under 35 U.S.C. § 102 as being anticipated by Ahn et al. The features of Zairi et al. do not make up for the features that are lacking in Ahn et al. Claims 14-17 which depend from claim 13 are also not subject to rejection under 35 U.S.C. §103(a) in view of Ahn et al. and Zairi et al.

Claim 21 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Ahn et al. in view of Doussiere et al. (U.S. Pat. No. 5,717,711). The ground for rejection of claim 21 is respectfully overcome by the amendment to claim 21 for similar reasons to claim 13. Neither Ahn et al. nor Doussiere et al. disclose nor suggest ". . .forming a substantially planar fiber mount region on a surface of the substrate. . . the substantially planar fiber mount region is configured to permit alignment of an optical fiber in first and second directions using at least a top view and a side view . . ." as required by amended claim 21.

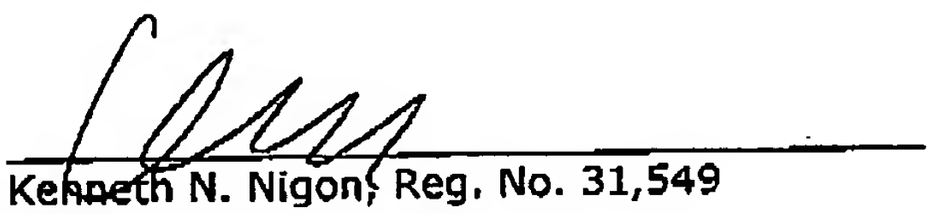
As described above, Ahn et al. do not disclose forming a substantially planar fiber mount region on a surface of the substrate configured to permit alignment of an optical fiber in first and second directions. Doussiere et al. disclose a fiber laser coupler. Doussiere et al. do not disclose nor suggest forming a fiber mount region on a surface of the substrate. Instead, Doussiere et al. disclose a fiber mounted in an opening in the wall of a casing that encloses the optical device. (See Fig. 3 and col. 3, lines 54-60). Accordingly, Doussiere et al. do not provide

the material that is missing from Ahn et al. Consequently, amended claim 21 is not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Ahn et al. in view of Doussiere et al.

Claims 22 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ahn et al. in view of Doussiere et al. and further in view of Zairi et al. This ground for rejection is respectfully traversed. Ahn et al., Doussiere et al. and Zairi et al. are described above. Because claims 22 and 23 depend from claim 21 they are not subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Ahn et al. in view of Doussiere et al. and further in view of Zairi et al.

In view of the foregoing amendments and remarks, Applicant requests that the Examiner reconsider and withdraw the rejection of claim 2 and 7-26.

Respectfully submitted,



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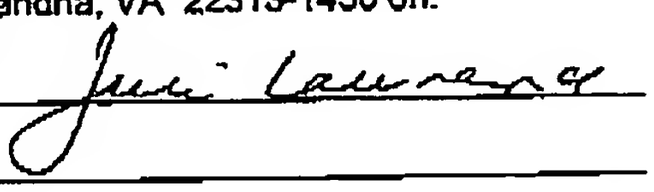

Juli A. Lawrence

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